

Amendments to the Drawings

Attached are replacement drawing sheets for original sheets 2 of 7 and 3 of 7. Per the Examiner's objection to the specification, Figure 4 presented on sheet 2 of 7 is amended to delete reference numeral "41." In addition, Figure 6 presented on sheet 3 of 7 is amended to replace reference numeral "52" with "56", for consistency with the specification as amended. (see amendment to paragraph [0024] above).

Attachments: Replacement sheet of original sheet 2 of 7
Replacement sheet of original sheet 3 of 7
Annotated sheet showing amendments to Fig. 4
Annotated sheet showing amendments to Fig. 6

Remarks

This application has been reviewed in light of the Office Action dated October 18, 2005. Claims 1-9 are pending in this case, with Claim 1 in independent form.

Claim 1 is amended to recite a “thermally conductive” reflective barrier. Claims 3-9 are amended for consistency with amended Claim 1.

Amendments to the Specification

With regard to the specification, paragraphs [0013], [0020], and [0023] are amended to correct minor informalities and typographical errors.

Paragraph [0005] and the Abstract section of the present application are amended to correct a minor typographical error wherein the term “substrate” is amended to “LEDs.” Support for this amendment may be found in the specification, including in original Claim 1.

Paragraph [0018] is amended to delete reference numeral “41,” in view of the Examiner’s objection to the Specification set forth on page 2 of the Office Action. In view of this amendment, Applicants respectfully request that the objection to the specification be withdrawn.

Paragraph [0021] is amended to overcome the objection to the Drawings set forth by the Examiner on page 2 of the Office Action by indicating that the term “heat spreader” in at least Claims 1 and 2 is represented by reference numeral “54” of Figure 5. Support for this amendment may be found in the Published Application, including at paragraphs

[0005] (“[I]n accordance with the present invention, an illumination device comprises a highly thermally conductive substrate having a surface”) and paragraph [0046] (“[T]he metal substrate serves as a heat spreader or heat sink”).

Finally, Paragraph [0024] is amended to properly refer to Figure 6 and correct the reference sign for the conductor from reference numeral “52” to reference numeral “56.”

Amendments to the Drawings

Submitted herewith are replacement sheets for original sheets 2 of 7 and 3 of 7. The replacement sheet of original sheet 2 of 7 sets forth a minor amendment to Figure 4 wherein the reference numeral “41” is deleted.

The replacement sheet of original sheet 3 of 7 sets forth a minor amendment to Figure 6 wherein the conductor is identified by reference numeral “56”, in accordance with the amendment to paragraph [0024] set forth above.

THE 35 U.S.C. 102(B) REJECTION OVER U.S. PATENT NO. 5,660,461 (“IGNATIUS ET AL.”)

Claims 1, 5-6 and 9 are rejected under 35 U.S.C. §102(b) as anticipated by U.S. Patent No. 5,660,461 (“Ignatius et al.”). It is well-established that for a reference to defeat a claim’s novelty under 35 U.S.C. § 102 (i.e., anticipate the claim), it must disclose each and every element of the claim. Advance Display Sys. v. Kent State Univ., 212 F.3d 1272 (Fed. Cir. 2000). Applicants respectfully request that this rejection be withdrawn because Ignatius et al. fails to teach each and every claim limitation of independent Claim 1 as amended.

Amended Claim 1 of the present application calls for an illumination device comprising a plurality of light emitting diodes (LEDs) on a substrate comprising a heat spreader. The illumination device includes at least one thermally conductive reflective barrier thermally coupled to the heat spreader (Published Application, paragraph [0020]). The reflective thermal barriers of Claim 1 provide two primary functions: 1) reflect light to achieve improved light extraction; and 2) provide improved thermal management of the heat generated by the LEDs. Advantageously, the barriers are adapted to reflect light and direct the LED-generated heat to the thermally coupled heat spreader and/or channel the heat to the atmosphere. (Published Application, paragraphs [0005] and [0020]).

According to the present invention, the thermally conductive reflective barrier may be comprised of a reflective and thermally conductive material, such as, for example, aluminum, tin, nickel, brass, copper, phosphorous bronze, beryllium copper, stainless steel, titanium, Inconel, steel, or other suitable precious metal (Published Application, paragraphs [0026], [0027], [0033]).

In contrast, the device disclosed in Ignatius et al. includes a reflector unit manufactured by standard injection molding of Acrylonitrile-Butadiene-Styrene (ABS) (Ignatius et al., column 5, lines 26-34). ABS, a thermally insulating material, is well known in the art as a resilient, heat-resistant thermoplastic, wherein the acrylonitrile provides heat resistance. The reflector unit in Ignatius et al. is a thermal insulator, not a thermal conductor.

Accordingly, Ignatius et al. fails to disclose a thermally conductive reflective barrier, as called for in independent Claim 1 as amended. As such, Applicants respectfully request that the §102(b) rejection of Claims 1, 5-6 and 9 be withdrawn.

THE 35 U.S.C. 102(B) REJECTION OVER U.S. PATENT NO. 6,318,886 (“STOPA ET AL.”)

Claims 1, 3-7 and 9 stand rejected under 35 U.S.C. §102(b) as anticipated by U.S. Patent No. 6,318,886 (herein “Stopa et al.”). Applicants respectfully submit that Stopa et al. fails to disclose each and every element of Claim 1 as amended.

As discussed above, Claim 1 as amended calls for an illumination device comprising a “thermally conductive” reflective barrier.

In contrast, Stopa et al. indicates that reflector assembly 10 is “preferably a molded plastic component,” but otherwise gives no indication of the materials or properties of the reflector. (Stopa et al., column 3, lines 58-60). Clearly, Stopa et al. does not disclose a thermally conductive reflector unit, as called for in amended Claim 1 of the present application. Accordingly, because Stopa et al. fails to disclose each and every element of amended Claim 1, the §102(b) rejection of Claims 1, 3-7, and 9 should be withdrawn.

Based at least on the above amendments and remarks, Applicants respectfully submit that Claims 1, 3-7 and 9 are in condition for allowance. Favorable reconsideration in this regard is earnestly solicited.

THE 35 U.S.C. §103(A) REJECTION OF CLAIM 2 AS OBVIOUS OVER STOPA ET AL. IN VIEW OF U.S. PATENT APPLICATION PUBLICATION NO. 2004/0222433 (“MAZZOCHETTE ET AL.”)

Claim 2 stands rejected under 35 U.S.C. § 103(a) as obvious over Stopa et al. in view of U.S. Patent Application Publication No. 2004/0222433 (Mazzochette et al.).

As provided above, Stopa et al. fails to teach or suggest each and every element set forth in independent Claim 1 as amended, from which Claim 2 depends, in that Stopa et al. does not teach the use of a thermally conductive reflector.

In addition, Mazzochette et al. was published on November 11, 2004, less than one year from the filing date of the present application (April 9, 2004). As such, Mazzochette et al. qualifies only as a §102(e)/§103(a) prior art reference with regard to the present application.

The subject matter set forth in the present application and the Mazzochette et al. reference were, at the time the invention was made, owned by, or subject to an obligation of assignment to, the same person or entity (Lamina Ceramics, Inc.), as evidenced by the assignment documents attached hereto and recorded at Reel/Frame numbers 015115/0321 and 014881/0176, respectively.

35 U.S.C. §103(c), as excerpted below, provides:

Subject matter developed by another person, which qualifies as prior art only under one or more of subsections (e), (f), and (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the claimed invention was made, owned by the same person or subject to an obligation of assignment to the same person.

35 U.S.C. §103(c). (emphasis added).

By application of the above statute, Mazzochette et al. may not be asserted as prior art against the present application. As such, Applicants respectfully request that the rejection of Claim 2 over Mazzochette et al. be withdrawn.

For at least the reasons set forth above, Applicants respectfully request the withdrawal of the 35 U.S.C. §103(a) rejection of dependent Claim 2.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and an early allowance of the claims pending in the present application.

Applicants' undersigned attorney may be reached by telephone at (973) 597-2500.

All correspondence should continue to be directed to our address listed below.

Respectfully submitted,



Daniel D. Sierchio

Attorney for Applicants

Registration No. 53,591

Docket Administrator
Lowenstein Sandler PC
65 Livingston Avenue
Roseland, NJ 07068



Assignment of Rights, Title and Interest in Invention
(Multiple inventors; multiple assignees)

Docket No.
14123-16

This is an Assignment of the following rights, title and interest: (check all that apply):

☒ *United States of America rights, title and interest in the invention*

☐ *Foreign rights, title and interest in the invention*

☒ *United States Patent Application Serial No.* 10/638,579

Date of Execution: _____

Date of Filing: 08/11/2003

☒ *United States Provisional Patent Application Serial No.* 60/467,857, filed 05/05/2003

☐ *United States Patent No(s).* _____

☐ *International (PCT) Patent Application Serial No.* _____

☐ *Other (specify)* _____

Title of the Invention

LIGHT EMITTING DIODES PACKAGED FOR HIGH TEMPERATURE OPERATION

Inventors (assignors)

<i>Name</i>	<i>Address</i>
JOSEPH MAZZOCHETTE	44 DONCASTER ROAD, CHERRY HILL, NEW JERSEY 08003
GREG BLONDER	120 WOODLAND AVENUE, SUMMIT, NEW JERSEY 07901

Assignment of Rights, Title and Interest in Invention (Multiple inventors; multiple assignees)

Docket No.
14123-16

Assignees

[illegible]

Docket No.
14123-16

And, whereas we desire to assign our above-identified rights, title and interest in the Invention to the above-identified Assignees;

We hereby assign, sell and transfer our above-identified rights, title and interest in said Invention, said application(s) as identified above, including any divisions, continuations, and continuations-in-part thereof, and in and to any and all Letters Patent of the United States, and countries foreign thereto, which may be granted for said Invention based upon said application(s) as identified above, said patents, domestic and foreign as identified above, and in and to any and all reissues and reexaminations thereof, and in and to any and all priority rights, Convention rights, and other benefits accruing or to accrue to us with respect to the filing of said application(s) for patents or securing of patents in the United States and countries foreign thereto, unto said Assignees, who will hold said rights, title and interest in equal shares;

And we further agree to sign and execute all necessary and lawful future documents, including applications for foreign patents, for filing divisions, continuations and continuations-in-part of said application for patent, and/or, for obtaining any reissue or reissues of any Letters Patent which may be granted for our aforesaid Invention, as the Assignees or their Designee(s) may from time to time require and prepare at their own expense.

[illegible]

APR 21 2006

**Assignment of Rights, Title and Interest in Invention
(Multiple inventors; multiple assignees)**

Docket No.

14123-16~

Notarization

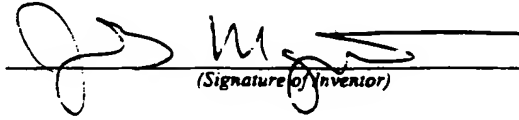
(Although notarization is not necessary, it will be considered prima facie evidence of execution pursuant to 35 U.S.C. 261.)

Executed this 18 day of NOVEMBER, in the year 2003

at

State of New Jersey

County of Burlington


(Signature of Inventor)

Before me personally appeared JOSEPH MAZZOCHETTE

who acknowledged the foregoing instrument to be a free act and deed and also represented that he or she is authorized to execute the same this 18th day of November, in the year 2003

SHEILA YOST
NOTARY PUBLIC OF NEW JERSEY
My Commission Expires 12/31/06


(Notary Public)

Executed this day of , in the year

at

State of

County of

(Signature of Inventor)

Before me personally appeared GREG BLONDER

who acknowledged the foregoing instrument to be a free act and deed and also represented that he or she is authorized to execute the same this day of , in the year

(Notary Public)

Executed this day of , in the year

at

State of

County of

(Signature of Inventor)

Before me personally appeared

who acknowledged the foregoing instrument to be a free act and deed and also represented that he or she is authorized to execute the same this day of , in the year

(Notary Public)

**Assignment of Rights, Title and Interest in Invention
(Multiple inventors; multiple assignees)**

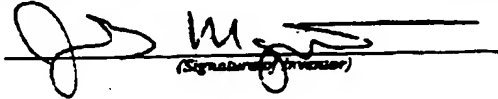
Docket No.
14123-16

Notarization

(Although notarization is not necessary, it will be considered prima facie evidence of execution pursuant to 35 U.S.C. 261.)

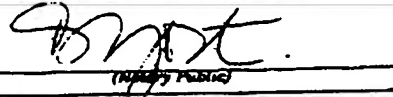
Executed this 18th day of NOVEMBER, in the year 2003

State of New Jersey
County of Burlington


(Signature of Inventor)

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who acknowledged the foregoing instrument to be a free act and deed and also represented that he or she is authorized to
execute the same this 18th day of November, in the year 2003

SHEILA YOST
NOTARY PUBLIC OF NEW JERSEY
My Commission Expires 12/37/06


(Notary Public)

Executed this _____ day of _____, in the year _____

State of _____
County of _____


(Signature of Inventor)

Before me personally appeared GREG BLONDER
who acknowledged the foregoing instrument to be a free act and deed and also represented that he or she is authorized to
execute the same this _____ day of _____, in the year _____

Executed this _____ day of _____, in the year _____

State of _____
County of _____

(Notary Public)

(Signature of Inventor)

Before me personally appeared _____
who acknowledged the foregoing instrument to be a free act and deed and also represented that he or she is authorized to
execute the same this _____ day of _____, in the year _____

(Notary Public)

ASSIGNMENT

WHEREAS, We, Joseph Mazzochette and Edmar M. Amaya (ASSIGNORS), citizens of the United States and residing at 44 Doncaster Road, Cherry Hill, NJ 08003 and 251 West Delkalb Pike, King of Prussia, PA 19406, respectively, have invented, developed, and/or have rights in certain technology and useful improvements in the field of light emitting diode arrays (the "Technology"), which Technology is disclosed in United States Patent Application Serial Number 10/822,191, filed on April 9, 2004 (the "Patent");

AND WHEREAS Lamina Ceramics, Inc. (ASSIGNEE) a corporation organized under the laws of the state of Delaware and having a place of business at 120 Hancock Lane, Westampton, NJ 08060, desires to acquire the entire right, title, and interest in and to the Technology and in and to the Patent;

NOW, THEREFORE, for good and valuable consideration, the receipt of which is hereby acknowledged, we have sold, assigned, transferred and set over, and do hereby sell, assign, transfer and set over to ASSIGNEE the entire right, title and interest in and to the Technology and in and to the Patent and all patents and patent applications claiming priority to the Patent including, without limitation, the U.S. non-provisional patent application issuing from and claiming priority to the Patent (the "Non-Provisional Patent"), and all divisions, continuations, and continuations-in-part of the Non-Provisional Patent, and all reissues, reexaminations, and extensions of the Non-Provisional Patent, and all priority rights under the International Convention for the Protection of Industrial Property for every member country, and all applications for patents (including related rights such as utility-model registrations, registrations, inventor's certificates, and the like) heretofore or hereafter filed for the Technology and the Patent in any foreign countries, and all patents (including all extensions, renewals and reissues thereof) granted for the Technology and the Patent in any foreign countries;

AND WE HEREBY authorize and request the United States Commissioner of Patents and Trademarks, and any officials of foreign countries whose duty it is to issue patents on applications as aforesaid, to issue all patents for the Technology and/or the Patent in the name of ASSIGNEE in accordance with the terms of this assignment;

AND WE HEREBY covenant that we have full right to convey the entire interest herein assigned, and that we have not executed, and will not execute, any agreement in conflict herewith;

AND WE HEREBY further covenant and agree that we will communicate to ASSIGNEE any facts known to us respecting the Technology and the Patent, sign all lawful papers, execute all divisional, continuation, continuation-in-part, reexamination, and reissue applications, make all rightful oaths and generally do everything possible to aid ASSIGNEE to obtain and enforce proper patent protection for the Technology and the Patent in all countries.

Counterparts. This Assignment may be signed in any number of counterpart copies and by the parties hereto on separate counterparts, but all such copies shall constitute one and the same instrument. Facsimile signatures and copies of signature pages shall be deemed effective execution of this Assignment, shall be deemed an original(s), and may be relied upon as such.

[Signatures Appear on Pages 2 and 3]

In testimony whereof, I hereunto set my hand this 18th day of August, 2004.

[Signature]
Joseph Mazzochette

STATE OF New Jersey)
) SS:
COUNTY OF Burlington)

On August 18th, 2004, before the undersigned, a Notary Public for the State and County aforesaid, personally appeared **Joseph Mazzochette**, known to me or proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the above assignment, and acknowledged that he executed the same.

[Signature]
(Notary Public)

SHEILA PICCONE
NOTARY PUBLIC OF NEW JERSEY
My Commission Expires
December 27, 2006

In testimony whereof, I hereunto set my hand this 18th day of August, 2004.

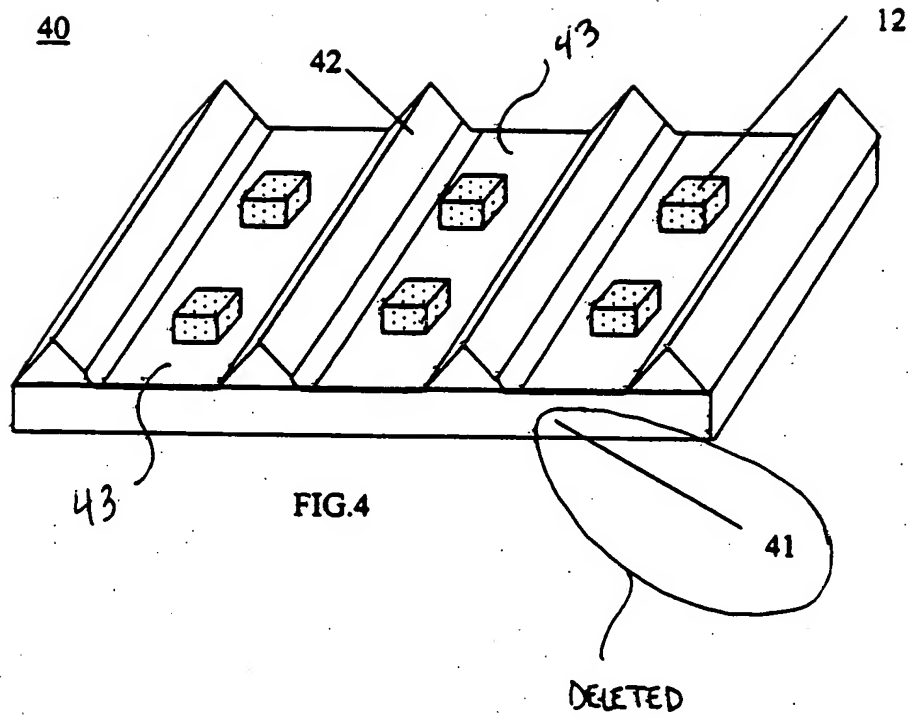
Edmar M. Amaya
Edmar M. Amaya

STATE OF New Jersey)
) SS:
COUNTY OF DuSable)

On August 18, 2004, before the undersigned, a Notary Public for the State and County aforesaid, personally appeared **Edmar M. Amaya**, known to me or proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the above assignment, and acknowledged that she executed the same.

SHEILA PICCONE
NOTARY PUBLIC OF NEW JERSEY
My Commission Expires
December 27, 2006

Sheila Piccone
(Notary Public)



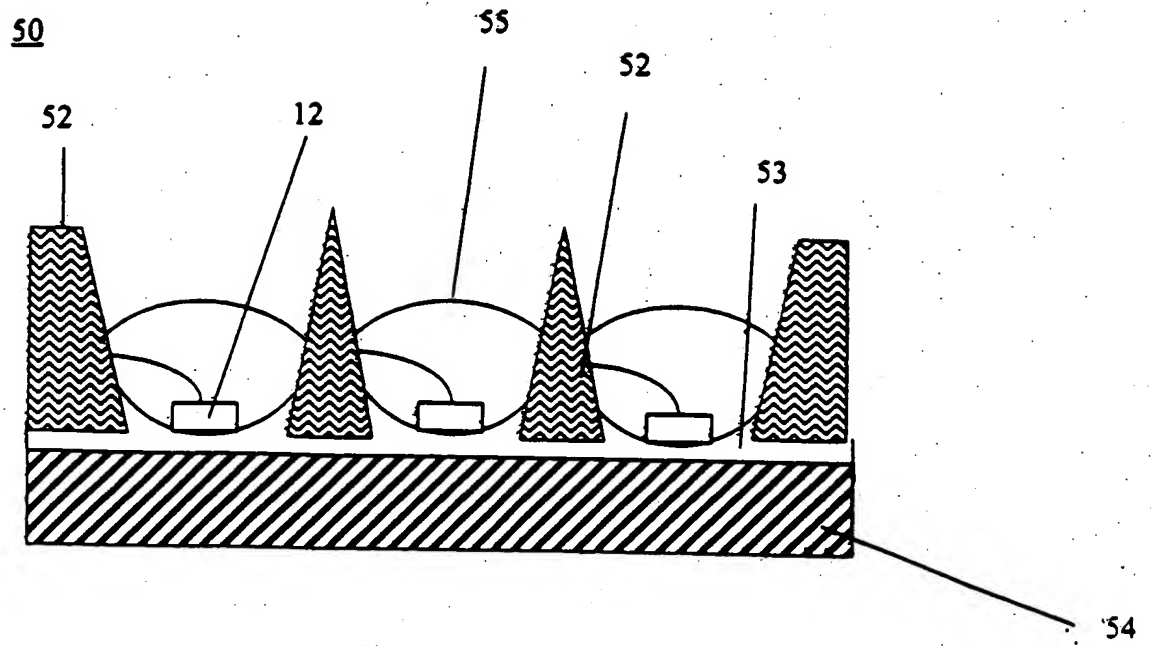


FIG. 5

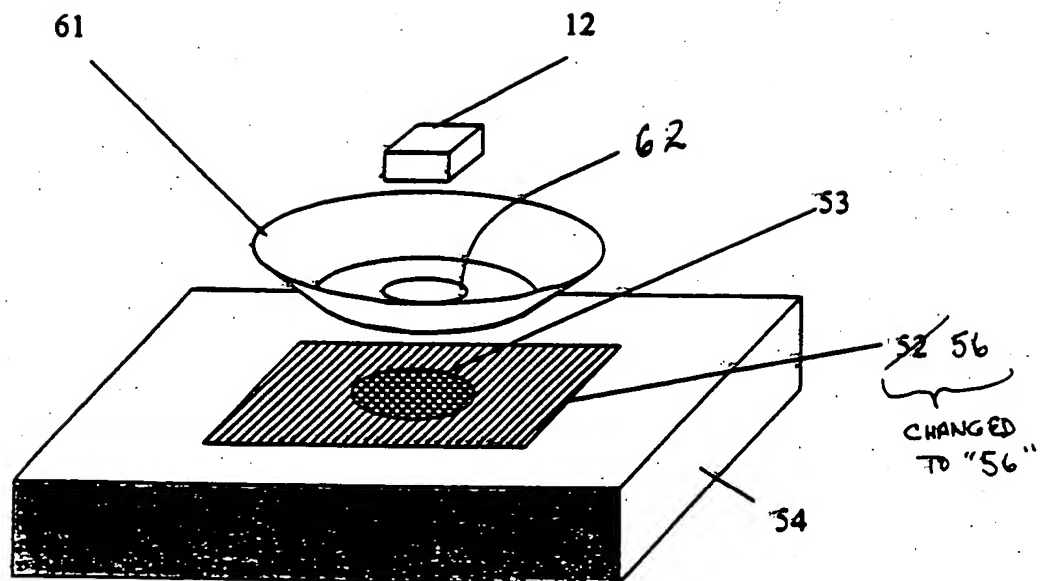


FIG. 6